



Profit Analysis

By
Hayal DARGIN

The Problem

Decrease in profit due to mismanagement and wrong advertisement in discount.

The Solution

In order to keep increase profit as sales do, reconsideration over the advertisements in discount per category and region is necessary.

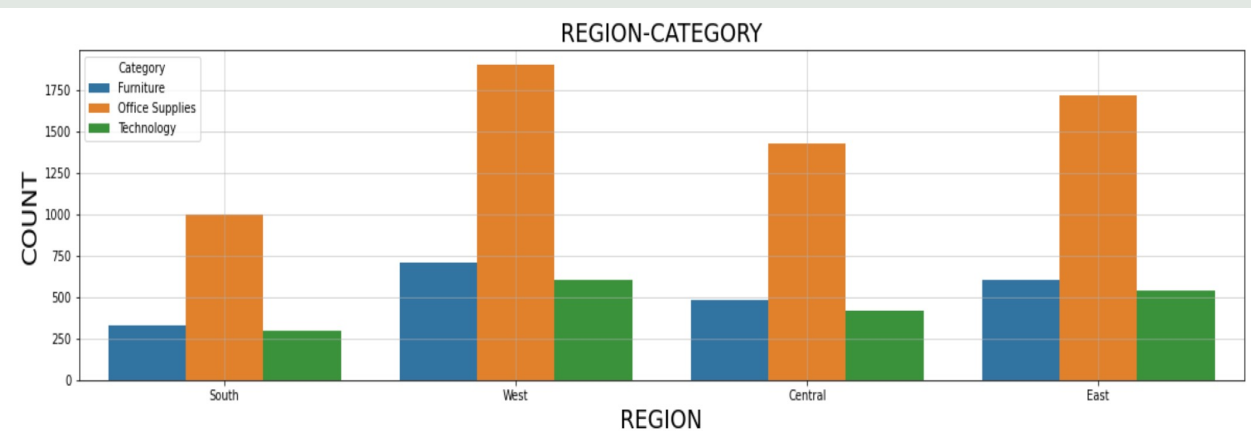
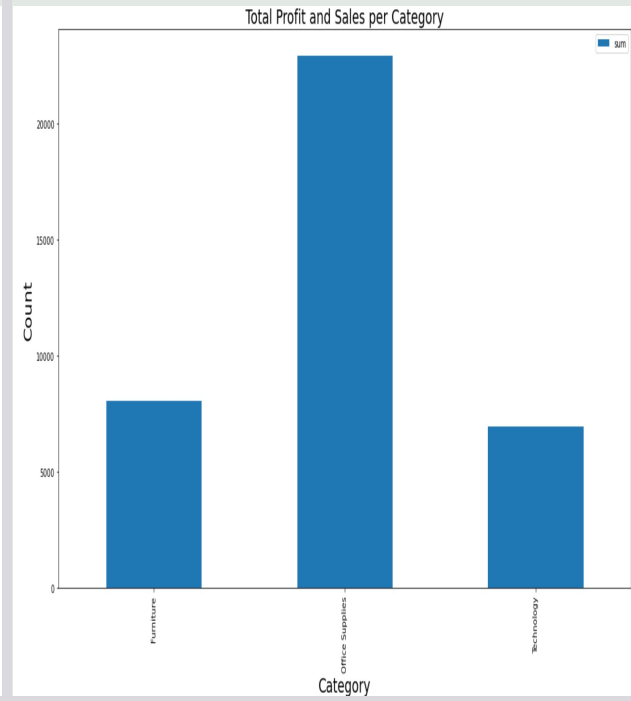
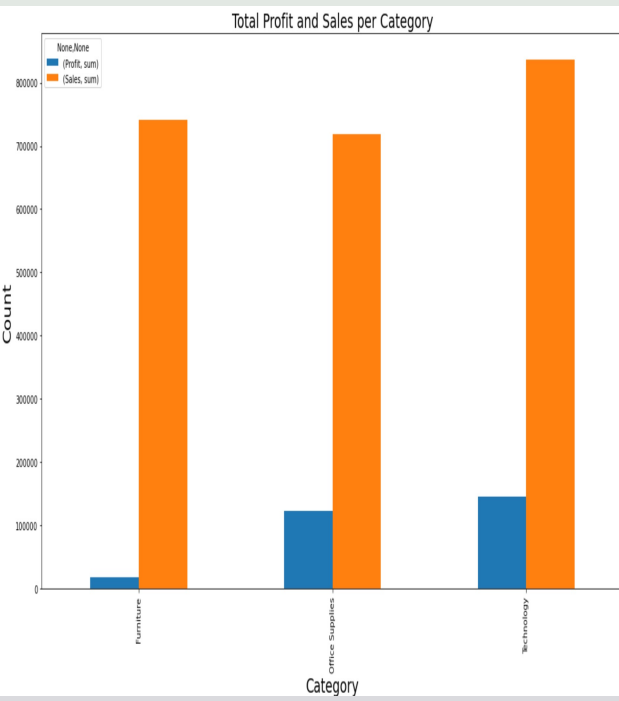
Data Set

	Row ID	Order ID	Order Date	Ship Date	Ship Mode	Customer ID	Customer Name	Segment	Country	City	...	Postal Code	Region	Product ID	Category	Sub-Category
0	1	CA-2016-152156	11/8/16	11/11/16	Second Class	CG-12520	Claire Gute	Consumer	United States	Henderson	...	42420	South	FUR-BO-10001798	Furniture	Bookcases
1	2	CA-2016-152156	11/8/16	11/11/16	Second Class	CG-12520	Claire Gute	Consumer	United States	Henderson	...	42420	South	FUR-CH-10000454	Furniture	Chairs
2	3	CA-2016-138688	6/12/16	6/16/16	Second Class	DV-13045	Darrin Van Huff	Corporate	United States	Los Angeles	...	90036	West	OFF-LA-10000240	Office Supplies	Labels
3	4	US-2015-108966	10/11/15	10/18/15	Standard Class	SO-20335	Sean O'Donnell	Consumer	United States	Fort Lauderdale	...	33311	South	FUR-TA-10000577	Furniture	Tables
4	5	US-2015-108966	10/11/15	10/18/15	Standard Class	SO-20335	Sean O'Donnell	Consumer	United States	Fort Lauderdale	...	33311	South	OFF-ST-10000760	Office Supplies	Storage

Data Wrangling

The row data set from Super Store contained 9994 rows with 21 columns.

- ❖ Target Variable: Profit
- ❖ Drop redundant columns



Exploratory Data Analysis

EDA Continued

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	Region	Category	Profit	prc_profit	Discount
0	Central	Furniture	-2871.0494	-157.145561	143.04
3	East	Furniture	3046.1658	137.586531	92.60
6	South	Furniture	6771.2061	524.493114	40.35
9	West	Furniture	11504.9503	426.741480	92.90

	Region	Category	Profit	prc_profit	Discount
2	Central	Technology	33697.4320	2182.476166	55.9
5	East	Technology	47462.0351	2443.977091	76.7
8	South	Technology	19991.8314	1788.178122	31.6
11	West	Technology	44303.6496	1897.372574	80.2

	Region	Category	Profit	prc_profit	Discount
1	Central	Office Supplies	8879.9799	164.170455	359.4
4	East	Office Supplies	41014.5791	634.704102	244.7
7	South	Office Supplies	19986.3928	525.957705	166.6
10	West	Office Supplies	52609.8490	727.157554	177.1

Model Selection

- ❖ Linear Regression
- ❖ Random Forest Regressor

Takeaways

- ❖ The discount has the highest impact on profit with %61 importance level. This finding is expected, and I found that discount had a negative impact on sales and profit from the analysis.
- ❖ Random forest regressor was the best model

Future Research

- ❖ Expand modeling
- ❖ While giving discounts by product, category, and region outcome of given discount and demand should be taken into consideration.
- ❖ Changes to business decision making.

Thank You!
